REMARKS

Claims 1-21 are pending. Claims 1-19 have been amended to improve their grammatical syntax and to remove multiple dependancies. Claims 20 and 21 have been added to round out the scope of the claims.

All of the claims are in condition for immediate allowance and applicant respectfully requests an early action allowing the claims.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief, including extensions of time, and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing our Docket No. 449122079000.

Respectfully submitted,

Dated: January 10, 2005 By: _____

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SUBSTITUTE SPECIFICATION (MARKED COPY)

AVOIDING MALFUNCTIONS IN MEDIA GATEWAY CONTROLLERS AND/OR MEDIA GATEWAYS

CLAIM FOR PRIORITY

This application is a § 371 National Stage application of PCT/DE2003/02229, which was filed in the German language on July 3, 2003, which claims the benefit of priority to German application No. 102 31 0262, filed July 9, 2002.

TECHNICAL FIELD OF THE INVENTION

The invention relates to a ~~methods~~ method and ~~devices~~ device for avoiding malfunctions in media gateway controllers and/or media gateways ~~changing the coding of (at least) one load data connection section termination at a media gateway of a media gateway controller at the media gateway~~.

BACKGROUND OF THE INVENTION

ITU-T protocols H.248 and Q.1950 specify the control of ~~what are known as~~ "Media Gateways," ~~(=~~which are commonly referred to as MGWs ~~especially~~ in ~~a~~ cellular mobile radio ~~network~~ networks and~~or~~ fixed ~~network~~networks~~)~~, by ~~what are known as~~ media gateway controllers (MGCs). Protocol Q.1950 "Bearer independent Call Bearer Control Protocol" (CBC) is used in conjunction with the BICC protocol Q.1902.4 already specified by the ITU-T. These protocols can also be used for 3GPP applications. Media Gateways commonly perform functions such ~~as the connection of~~connecting load connection sections (for transmission of load data such as voice, text, multimedia data) of ~~a~~ telecommunications ~~network~~networks, and ~~where necessary~~can also convert between various codings, ~~for example voice codings~~ such as G.711 or AMR voice codings. In this document, load connection section termination, ~~or~~ also refered to herein as termination, ~~for short~~ is taken to be the termination of a section

of a network connection which is switched through the MGW e.g. for data such as voice or multimedia (sound and or picture) at this MGW. Through this termination, the MGW sends and/or receives (load) data belonging to the load connection. In voice usage of protocols H.248 and Q.1950 a load connection section termination corresponds to a "termination".

The above-mentioned protocols allow existing load connections to be changed, by selecting another coding for example. The signaling used between MGC and MGW (protocols H.248 and Q.1950) is designed so that each termination in the MGW is changed independently of the other terminations connected with it within the MGW. For example the MGW can be instructed to use another coding at this termination, or to transmit and/or receive no data, which may indicate (=deactivation of this termination at the MGW = and/or isolation of this termination at the MGW).

The MGW does not know when changing a termination whether other terminations connected by it to this termination will subsequently be changed. Therefore, the MGW, when changing a termination, the MGW must immediately take measures if it is with connected with other terminations. (inIn voice usage of protocols H.248 and Q.1950, terminations connected to each other within an MGW are in what is known as a shared "context".) and different codings are produced that and must use what is known as transcoding to convert these codings into one another. In special cases however the coding of all terminations connected to each other in the MGW which lie in the same "context" should be changed almost simultaneously, for example, within the framework of what is known as BICC "codec modification" or "codec renegotiation" (see Q.1902.4), via which the coding of existing voice connections can be changed.

3GPP also uses said BICC procedures to switch over existing load connections between (the load data types) such as voice and multimedia data (i.e. a combination of voice and pictures in a shared coding). The MGC can recognize such situations on the basis of what is known as the "Call Control" signaling, arriving at it, e.g. Q.1902.4. Since the signaling of the MGC occurs sequentially at

the MGW, an almost simultaneous switchover of all connected terminations within an MGW results in possibly undesired operating behavior. here:An example of such undesirable behavior may occur if The the MGW briefly activates a transcoder which is then almost immediately deactivated again. This generates thereby generating unnecessary operational load in an MGW and reduces itsreducing the throughput. It would be acceptable, but to date has not been technically possible, to briefly interrupt the connection. In addition the MGW may possibly establish, on changing the first termination, that it cannot convert the new coding of this termination into the coding still used at the other termination(s). This can, for example, occur if the changeover is to be between a voice connection and a multimedia connection or a general data connection. The MGW in this case thereforerejectswould reject the change of the load connection using H.248/Q.1950 signaling.

SUMMARY OF THE INVENTION

The invention relates to a method for executing a command signaled from a Media Gateway Controller to a Media Gateway to change the coding of at least one load data connection section termination at the Media Gateway, where the Media Gateway, after arrival of the command, checks for the connectibility of the terminations of this context with changed coding if it establishes, as a result of one or more further signaled commands arriving at the Media Gateway that it has available current commands to be executed for changing the codings in terminations of this context.

The object of the present invention is to make possible the mostallows for an efficient changeover of codings in terminations present at a media gateway on an instruction to the media gateway and to makeenables switching it possible to switch between codings that the media gateway cannot is unable to convert into each other. The object is achieved by the objects of the Independent claims in each case.

In that, in accordance with an aspect of the invention, a media gateway (MGW), on arrival of a command (to change the coding of at least one termination of a context at the MGW), waits withdelays

testing of the connectibility (of the terminations of this context with new (changed by a command for at least one termination) coding), which is changed by a command for at least one termination, and, if necessary, also delays activation of a transcoding. These actions are delayed until the MGW it establishes, on the basis of one or more signals arriving at the MGW, that it has all the current outstanding (that is in particular all not yet already processed) commands for changing codings in terminations of this context available, that is, those commands that are not already procesed.

An An unnecessary operating load through caused by a short-term switching on- and off of a transcoder (according to the prior art) can be avoided in the MGW. In an aspect of the invention, theThe media gateway MGW establishes that the MGW has available all the current commands to be executed are available. (=e.g.For example, the MGW may establish that the all current commands which are known (or forwarded) to one or more MGC(s) and/or media gateways) for changing coding in terminations of this context are available. To do this theThe media gateway uses may establish this by using the signaling in the BICC procedures "Codec Modification" and "Codec Renegotiation" according to Q.1902.4 and Q.1950 unchanged, as previously specified, and also without messages having to be modified. The behavior of the MGW in accordance with this aspect of the invention as a reaction to incoming Q.1950 messages deviates from the behavior previously specified in Q.1950.

According to a further aspect of the invention, anAn MGW can establish (decide) on the basis of different further signaling (e.g.see reference nos. 5/7/9 in Fig. 1) that it has all the commands which are available for changing terminations of this context,-. for For example, because if it has received suitable signaling from the Media Gateway Controller MGC (such as confirm characteristic 9= confirmedwhich confirm a change of the characteristic (here of the coding)), or because it has received, for the terminations in a context for termination B affected by the first command (2) (in Fig. 1: only termination A) a command for changing the coding of this termination (in Fig. 1: termination A) etc.

According to another aspect of the invention, a Media Gateway Controller which initiates the changing of a load connection using the BICC procedures "Codec Modification" and "Codec Renegotiation" according to Q.1902.4 can simultaneously initiate these procedures in the direction of the branches of the load connection coming together within it. The synchronization of these separate procedures is not currently specified in BICC. A suitable synchronization of the procedures in the MGC is also enabled by this invention.

The following embodiments of the invention are provided as examples. The invention is not limited to the embodiments provided below.

1. The sequence of signaling for the BICC procedures "Codec Modification" and "Codec Renegotiation" in accordance with Q.1902.4 is utilized in order to adapt the procedures to the MGW other than in the way described in Q.1950 so that the MGW does not check for transcoding needed between terminations in a context, as well as for the activation of transcoders that may be necessary, until the point at which, in the case of a joint modification of a number of terminations, it has already received signaling from the MGC relating to the modification of the terminations.

2. In the case where the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW should perform the checking and activation of the transcoder when the MGC confirms to the MGW the modification of this termination by means of the Q. 1950 "Confirm Characteristics" procedure.

3. In a further embodiment of 2, where the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW should also check and activate the transcoder when the MGW has received from a media gateway at the

other end of a load connection section with a termination in the same context a message to modify the load connection, for example the Q.2630 "Modify Bearer" procedure.

4. In a ~~preferred~~ further embodiment of 2, ~~and as an alternative to 3, in the case~~ where the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW should also check and activate the transcoder when the MGW has also received commands from the MGC for modification via the Q.1950 "Reserve Characteristics" procedure or the Q.1950 "Modify Characteristics" procedure for all terminations in the same context.

5. In the case where the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW should only perform the checking and activation of the transcoder when the media gateway at the other end of the load connection section corresponding to the termination signals that the load connection is to be modified.~~:~~

6. In a ~~preferred~~ further embodiment of 5, ~~in the case~~ where the MGC uses the Q.1950 "Modify Characteristics" procedure to cause the MGW to modify a termination, the MGW should only check and activate the transcoder when the MGW has also received commands from the MGC for modification via the Q.1950 "Reserve Characteristics" procedure or the Q.1950 "Modify Characteristics" procedure for ~~all~~ the terminations in the same context.

7. In the case where the MGC is jointly modifying a number of terminations belonging to a load connection, where it uses the Q.1950 "Modify Characteristics" procedure for at least two terminations, the MGC should first execute the Modify Characteristics" procedure for all these terminations before it sends the messages "Modify to Selected Codec information" or "Modify Codec" to the media gateways at the other ends of the corresponding load connection sections for Q.1902.4. This ~~case occurs~~may occur at an MGC which initiates a simultaneous change of the load connection in two or more directions. According to BICC, Q.1902.4, the procedures "Codec Modification" and "Codec Renegotiation" execute independently from this MGC in all directions. ~~The synchronization~~

~~of these procedures in the initiating MGC is the object of the invention. (see Figure 4)~~

8. In ~~a Preferred embodiment~~further embodiments of 1 to 7, in the MGW after the signaling via the Q.1950 protocol by means of the "Reserve Characteristics" procedure or the Modify Characteristics" procedure that the coding of a specific termination is to be changed, ~~all~~ the terminations connected to it in the same "context" are deactivated (H.248 "stream mode"), i.e. the MGW does not direct any load data from and to these terminations. Only the first termination changed goes into the transmit and receive state, i.e. forwards load data from and to the terminations involved in the same "context". Only after the arrival of commands for changing these inactive terminations in accordance with ~~points~~ embodiments 1 to 7 will the MGW check in each case whether it can connect the termination(s) in their new coding to each other.

9. In ~~a preferred embodiment~~ further embodiments of 1 to 8, the MGW ~~cannot~~ does not immediately establish the connections after the check specified in 1, but first, even if also using additional separate signaling, for example the lu FP initialization specified in 3GPP in TS 25.415 and 29.415, ~~would initiate~~initiates the changeover of the coding at these terminations with the media gateway at the other ends of the load connection sections to be connected again.

10. In ~~a preferred embodiment~~ further embodiments of 1 to 9, the MGW ~~cannot~~ does not activate the relevant termination immediately for load data, i.e. the MGW does not set it to the transmit and receive data state after receiving the command for the change from the MGC, but only does so if the changeover of the coding is undertaken by a subsequent separate signal, for example the lu FP initialization specified in 3GPP in TS 25.415 and 29.415, with the media gateway at the other end of the load connection section.

11. In ~~a preferred embodiment~~further embodiments of 1 and 10, the MGW ~~can restrict~~restricts the period after arrival of the first command to change a termination until the arrival of the command which initiates the check. If in this period ~~all~~ the relevant commands for ~~all~~ the associated load connections have not arrived,

the MGW can again establish the original connection of the load connections with the old coding.

Further features and advantages of the invention are produced by the claims and the subsequent description of an exemplary embodiment on the basis of the drawing. The Figure shows:

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in more detail below with reference to exemplary embodiments and the drawing figures in which:

Fig. 1 shows the BICC and CBC message flow on when switching over a load connection from one coding to another coding for the case ofwhere an a pair of MGC and MGW which process and forward a modification of the coding of a load connection initiated by another media gateway.

Fig. 2 shows the BICC and CBC message flow on when switching over a load connection from one coding to another coding for the case ofwhere an a pair of MGC and MGW which process and forward a modification of the coding of a load connection initiated by another media gateway.

Fig. 3 shows the BICC and CBC message flow on when switching over a load connection from one coding to another coding for the case ofwhere an a pair of MGC and MGW which itself initiates initiate the modification of an a coding of a load connection in the direction of a load connection section.

Fig. 4 shows the BICC and CBC message flow on when switching over a load connection from one coding to another coding for the case ofwhere an a pair of MGC and MGW which itself initiatesinitiate the modification of an a coding of a load connection in the direction of two load connection sections connected by the MGW.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 shows an aspect of the invention in which the BICC and CBC

message flow ~~on~~ when switching over a load connection from one coding to another coding ~~The case of~~ where a pair ~~of~~ having an MGC and an MGW ~~which~~ processes and forwards a modification of the coding of a load data connection initiated by another media gateway is shown.

The corresponding numbers specify the timing sequence of the messages. Messages in the areas delimited by rounded edges each relate to a corresponding termination. For simplification the message flows are only shown for two terminations involved. ~~All further~~ Further terminations within the connection must be handled in a similar way. The terminations are connected to each other within the MGW and lie in the same "context". Messages 2,3,4,5,7 and 9 are each confirmed by a message in the opposite direction ~~immediately~~ following them.

The BICC procedure "Codec Modification" is also shown. With the BICC procedure "Codec Renegotiation", to which the present invention can also be applied, the message flow is identical, but instead of the "Modify Codec" message ~~(~~1 and 6~~)~~ the "Modify to Selected Codec information" message is used.

The message flow is used in accordance with this aspect of the invention as follows:

1. The messages 2 (Q.1950 "Reserve Characteristics") and 5 (Q.1950 "Modify Characteristics") are used unchanged, as described in the protocols. The way that the MGW behaves in relation to these messages changes fundamentally.

2. After the arrival of message 2 the MGW checks whether this message is the first instruction relating to the corresponding "context" which requires a change to the coding. If this condition applies, the MGW deactivates ~~all~~ the terminations associated with this termination as well as ~~all~~ the terminations in the same "context". The message explicitly defines the desired new coding for the "context".
3. Subsequently ~~(~~, but before message 3 is sent~~)~~, the MGW

activates the termination B, i.e. puts this into the transmit and receive load data state.

4. After arrival of message 5, or 7, or 9 the MGW checks whether the new coding of a connection of the terminations A and B is possible. If this is not possible, the MGW sends a corresponding error message in the receive confirmation for 5 or 9. The further error signaling is not shown here.
5. ~~Else~~ If it is possible, the MGW activates termination A again using the new coding (in the case of using message 5 in Point 4, but not until the arrival of message 7) and thereby "connects" the terminations A and B.
6. ~~All~~ The further inactive terminations not shown here are changed in a similar way.

Fig. 2 shows another aspect of the invention in which the BICC and CBC message flow on changeover of a load connection from one coding to another coding ~~The case of~~where a pair ~~of~~ having an MGC and an MGW ~~which~~ processes a modification of the coding of a load connection initiated by another media gateway but does not forward it is shown.

The corresponding numbers specify the timing sequence of the messages. Messages in the areas delimited by rounded edges each relate to a corresponding termination. Messages 2,3,4 and 5 are each confirmed by a message in the opposite direction ~~immediately~~ following them.

The BICC procedure "Codec Modification" is also shown. With the BICC procedure "Codec Renegotiation", to which the present invention can also be applied, the message flow is identical, but instead of the "Modify Codec" message 1, the "Modify to Selected Codec information" message is used.

The message flow ~~is~~ used in accordance with this aspect of the invention is as follows:

1. The message 2 (Q.1950 "Reserve Characteristics") ~~will be~~is used unchanged, as described in the protocols. The way that the MGW

behaves in relation to these messages changes fundamentally.

2. After the arrival of message 2, the MGW checks whether this message is the first instruction relating to the corresponding "context" which requires a change to the coding. If this condition applies, the MGW deactivates ~~all~~ the terminations associated with this termination as well as ~~all~~ the terminations in the same "context". The message explicitly defines the desired new coding for the "context".
3. Subsequently, ~~(~~but before message 3 is sent~~)~~, the MGW activates termination B, i.e. puts this into the transmit and receive load data state.
4. After arrival of message 5, the MGW checks whether the new coding of a connection of terminations A and B is possible. If this is not possible, the MGW sends a corresponding error message in the receive confirmation for 5. The further error signaling is not shown here.
5. ~~Else the MGW, if this is~~ If necessary ~~as~~ based on ~~a~~ the result of the different codings at termination A and B, the MGW inserts a transcoder and then activates termination A again using the new coding and thereby "connects" terminations A and B.

Fig. 3 shows an aspect of the invention in which the BICC and CBC message flow ~~on~~ when switching over a load connection from one coding to another coding ~~The case of~~ where a pair ~~of~~ having an MGC and an MGW ~~which itself~~ initiates modification of the coding of a load data connection in the direction of a load connection section is shown.

The corresponding numbers specify the timing sequence of the messages. Messages in the areas delimited by rounded edges each relate to a corresponding termination. Messages 1 and 3 are each confirmed by a message in the opposite direction immediately following them.

The BICC procedure "Codec Modification" is shown. With the BICC procedure "Codec Renegotiation", to which the present invention can

also be applied, the message flow is identical, but instead of the "Modify Codec" message 2 the "Modify to Selected Codec information" message is used.

The message flow is used in accordance with this aspect of the invention as follows:

1. The message 1 (Q.1950 "Modify Characteristics") will beis used unchanged as described in the protocols. The way that the MGW behaves in relation to these messages changes fundamentally.
2. After the arrival of message 1, the MGW checks whether this message is the first instruction relating to the corresponding "context" which requires a change to the coding. If this condition applies, the MGW deactivates all the terminations associated with this termination as well as all the terminations in the same "context". The message explicitly defines the desired new coding for the "context".
3. Subsequently, the MGW activates termination A, i.e. puts this into the transmit and receive load data state.
4. After arrival of message 3, the MGW checks whether the new coding of a connection of terminations A and B is possible.
5. Else the MGW, ifIf this is necessary as a result of the different codings at termination A and B, the inserts a transcoder and then activates termination B again using the new coding and thereby "connects" terminations A and B.

Fig. 4 shows an aspect of the invention in which the BICC and CBC message flow on when switching over a load connection from one coding to another coding The case ofwhere a pair of having an MGC and an MGW which itself initiates modification of the coding of a load data connection in the direction of two load connection sections connected by the MGW is shown.

The corresponding numbers specify the timing sequence of the messages. Messages 3, 4, 5 and messages 3a, 4a, 5a are executed independently of any other message flow. Messages in the areas delimited by rounded edges each relate to a corresponding termination. For simplification the message flows are only shown for two terminations involved. All furtherFurther terminations within

the connection ~~must be~~are handled in a similar way. The terminations are connected to each other within the MGW and lie in the same "context". Messages 1, 2, 4 and 4a are each confirmed by a message in the opposite direction ~~immediately~~ following them.

The BICC procedure "Codec Modification" is shown. With the BICC procedure "Codec Renegotiation", to which the present invention can also be applied, the message flow is identical, but instead of the "Modify Codec" message ~~(~~3 and 3a~~)~~ the "Modify to Selected Codec information" message is used.

The message flow is used in accordance with this aspect of the invention as follows:

1. Messages 1 and 2 (Q.1950 "Modify Characteristics") are sent by the MGC and confirmed by the MGW before the MGC sends the messages 3 and 3a (Q.1902.4 "Modify Codec). According to Q.1902.4 the only requirement is for the MGC to send message 1 before message 3 and message 2 before message 3a.
2. Messages 1 and 2 (Q.1950 "Modify Characteristics") are used unchanged, as described in the protocols. The way that the MGW behaves in relation to these messages changes fundamentally.
3. After the arrival of message 1, the MGW checks whether this message is the first instruction relating to the corresponding "context" which requires a change to the coding. If this condition applies, the MGW deactivates ~~all~~ the terminations associated with this termination as well as ~~all~~ the terminations in the same "context". The message explicitly defines the desired new coding for the "context".
4. Subsequently the MGW activates termination A, i.e. puts this into the transmit and receive load data state.
5. After arrival of message 2, or 4, or 4a, the MGW checks whether in the new coding a connection of the terminations A and B is possible.
6. The MGW activates termination B again using the new coding ~~(in the case of use of~~where message 2 is used in Point 5 ~~only after~~following the arrival of message 4a~~)~~ and thereby "connects" terminations A and B.

7. ~~All further~~Further inactive terminations not shown here are changed in a similar way.

Patent claims

1. Method for executing a command signaled from a Media Gateway Controller (MGC) to a Media Gateway (MGW) (reference symbol 2 in Fig. 1 and 2; reference symbol 1 in Fig. 3 and 4) to change the coding of at least one load data connection section termination (termination B in Fig. 1) at the Media Gateway (MGW), where the Media Gateway (MGW) after arrival of the command only checks for the connectibility of the terminations (termination B, termination A in Fig. 1) of this context (termination B, termination A etc) with changed (2, 5/7/9) coding if it (MGW) establishes, as a result of one or more further signaled commands arriving at the Media Gateway (MGW) (5 or 7 or 9 in Fig. 1) that it (MGW) has available all current commands to be executed (2, 5) for changing the codings in terminations of this context.

2. Method in accordance with one of the previous claims, characterized in that, the Media Gateway (MGW) as well as checking the connectibility of the terminations, also waits before any activation of a transcoding that may be required between terminations for which the coding now differs, until it (MGW) as a result of one (5 or 7 or 9 in Fig. 1) or more further signaled commands arriving at the Media Gateway (MGW) establishes that it has available to it all commands for changing the codings of terminations of this context.

3. Method in accordance with one of the previous claims, characterized in that the Media gateway (MGW), after arrival of a command (2) for changing the coding of at least one termination

(termination B) checks whether the command (2) that has arrived is the first currently not yet processed command for changing the coding of a termination of the context, and, if it is, isolates or deactivates all terminations (termination A, termination B) of this context until the Media Gateway (MGW) establishes that it has received all current commands for changing the coding of a termination of this context.

4. Method in accordance with one of the previous claims, characterized in that the checking includes of the connectibility of terminations (termination A, termination B) to one another with if necessary changed coding to check whether the changed codings are the same, whereby, if they are the same, the terminations are connected without activation of a transcoding.

5. Method in accordance with one of the previous claims, characterized in that, if the checking of the connectibility of terminations (termination A, termination B) reveals that the changed codings are not the same, and the Media Gateway (MGW) can also not convert them into each other by activating a transcoding, it (MGW) sends an error message to a Media Gateway Controller (MGC).

6. Method in accordance with one of the previous claims, characterized in that the sequence of the signaling for the BICC procedures "Codec Modification" and "Codec Renegotiation" according to Q.1902 is utilized in order to adapt the procedure to the MGW other than in the way described in Q.1950 so that the MGW only performs the check for a necessary transcoding between the terminations in a context as well as any activation of transcoders

that may be required at a point at which, in the case of a joint modification of a number of terminations by the MGC, it has already received signaling relating to the modification of all terminations.

7. Method in accordance with one of the previous claims, characterized in that, if the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW only checks and activates the transcoder if the MGC activates the modification of this termination by means of the Q. 1950 "Confirm Characteristics" procedure to the MGW.

8. Method in accordance with one of the previous claims, characterized in that, in the case in which the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW only checks and activates the transcoder if the MGW has received from a media gateway at the other end of a load connection section with a termination in the same context a message to modify the load connection, especially the Q.2630 "Modify Bearer" procedure.

9. Method in accordance with one of the previous claims, characterized in that, if the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW also checks and activates the transcoder if the MGW has

received from a media gateway at the other end of a load connection section with a termination in the same context a message to modify the load connection, especially the Q.2630 "Modify Bearer" procedure.

10. Method in accordance with one of the previous claims, characterized in that, if the MGC uses the Q.1950 "Reserve Characteristics" procedure to cause the MGW to modify a termination, the MGW also checks and activates the transcoder if the MGW has also received from the MGC, for all terminations in the same context, commands for modification via the Q.1950 "Reserve Characteristics" procedure or the Q.1950 "Modify Bearer" procedure.

11. Method in accordance with one of the previous claims, characterized in that, if the MGC uses the Q.1950 "Modify Characteristics" procedure to cause the MGW to modify a termination, the MGW only checks and activates the transcoder if the media gateway at the other end of the load connection section corresponding to the termination signals that the load connection is to be modified, especially by means of the Q.2630 "Modify Bearer" procedure.

12. Method in accordance with one of the previous claims, characterized in that, in the case in which the MGC uses the Q.1950 "Modify Characteristics" procedure to cause the MGW to modify a

termination, the MGW also checks and activates the transcoder if the MGW has also received from the MGW for all terminations in the same context commands for modification via the Q.1950 "Reserve Characteristics" procedure or the Q.1950 "Modify Characteristics" procedure.

13. Method in accordance with one of the previous claims, characterized in that, in the case in which the MGC is jointly modifying a number of terminations belonging to a load connection, where it uses the Q.1950 "Modify Characteristics" procedure for at least two terminations, the MGC first executes the Modify Characteristics" procedure for all these termination before sending for Q.1902.4 the messages "Modify to Selected Codec information" or "Modify Codec" to the media gateway at the other ends of the corresponding load connection section. (Fig. 4)

14. Method in accordance with one of the previous claims, characterized in that, if after signaling via the Q.1950 protocol by means of the "Reserve Characteristics" procedure or the Modify Characteristics" the coding of a specific termination to be changed in the MGW, all terminations associated with it in the same "context" are deactivated (H.248 "stream ") and the MGW does not direct any load data from and to these terminations, where just the first termination changed goes into the transmit and receive state and forwards load data from and to the terminations involved in the

same "context" and only after arrival of commands to change these inactive terminations does the MGW check whether it can connect the termination(s) together in its (their) new coding.

15. Method in accordance with one of the previous claims, characterized in that the MGW does not immediately reestablish the connections after the checks specified in 1, but first, even if additionally using separate signaling, for example the lu FP initialization specified in 3GPP in TS 25.415 and 29.415, the changeover the coding at these terminations would be instigated with the MGW at the other ends of the load connection sections to be connected again.

16. Method in accordance with one of the previous claims, characterized in that the MGW does not immediately activate the relevant termination after receiving the command for modifying from the MGC for load data, by setting it to transmit and receive load, but first, even if using subsequent separate signaling, for example the lu FP initialization specified in 3GPP in TS 25.415 and 29.415, the changeover of the coding is instigated with the MGW at the other end of the load connection.

17. Method in accordance with one of the previous claims, characterized in that the MGW restricts the period of time between the arrival of the first command for changing of a termination and the arrival of the command which initiates the checking, and, if the corresponding commands for all connected load connections have not

arrived within this period, the MGW establishes the original connection of the load connections again with the old coding.

18. Device for executing the method in accordance with one of the previous claims.

19. Device (MGW) especially in accordance with Claim 18, with inputs and/or outputs for terminations (termination A, termination B) of connection sections for load data,
With one input for commands signaled by a Media Gateway Controller (MGC) to the device (MGW) (reference symbol 2 in Fig. 1 and 2; reference symbol 1 in Fig. 3 and 4) for changing the coding of at least one load data connection section termination (termination B in Fig. 1) at the device (MGW),
with a control for checking the connectibility of the terminations (termination B, termination A in Fig. 1) of this context (termination B, termination A etc) with changed (2, 5/7/9) coding, said control being embodied such that it only makes this check if all commands to be currently executed (2, 5) for changing codings in terminations of this context are available at the device (MGW) as a result of one or more further signaled commands (5 or 7 or 9 in Fig. 1) arriving at the device (MGW).

AMENDMENTS

In the specification:

Please replace the original title with the following:

"**AVOIDING MALFUNCTIONS IN MEDIA GATEWAY CONTROLLERS AND/OR MEDIA GATEWAYS**"